

REMARKS

Claims 1, 32-35, 47-48, 57, and 87-90 have been amended, and claims 10-31, 36-39, 49-50, 53-56, 65-86, 91-94, and 102-111 have been cancelled without prejudice. Accordingly, claims 1-9, 32-35, 40-48, 51-52, 57-64, 87-90, and 95-101 remain pending.

The Examiner has objected to the specification with respect to a number of typographical errors, which have been corrected herein.

The drawings have been objected to as failing to comply with 37 C.F.R. 1.84(p)(5) because they do not include a reference symbol T2 for Fig. 2a as mentioned in the specification. A replacement sheet for Fig. 2a has been provided.

The drawings and specification are object to as failing to comply with 37 C.F.R. 1.84(p)(5) because the reference characters that are not mentioned in the description. Replacement sheets for Figs. 3b, 5a, 7, and 11f, on which the reference symbols, noted by the Examiner, have been removed, are herein provided. However, it is noted that the reference symbol 524 for Fig. 5a appears in the specification on page 42, line 1 and such reference symbol remains on Fig. 5a. It is respectfully submitted that the drawings now comply with 37 C.F.R. 1.84(p)(5).

The Examiner rejected claims 1-14, 19, 24-26, 32-35, 40-42, 46, 48, 53, and 54 under 35 U.S.C. §101 as being directed towards non -statutory subject matter. Specifically, the Examiner asserts that the step “determining overlay error...using a linear approximation” is an abstraction without tangible result. Claim 1 has been amended to recite “determining and storing, in memory, an overlay error...using a scatterometry technique” to overcome this subject matter rejection. It is respectfully submitted that an overlay error value is a tangible result that could be used for any number of practical purposes, such as correction of lithographic process and/or tool. Accordingly, it is submitted that the pending claims comply with 35 U.S.C. §101.

The Examiner has deemed claims 87-90 and 32-35 to be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims and to overcome the rejection under 35 U.S.C. §101. Towards this end, independent claims 1 and 57 have been amended to incorporate the limitations of claims 32-35 and 87-90, respectively, in an alternative form, excepting that the limitation “determining any overlay error...using a linear approximation method” has been amended to “determining and storing any overlay error...using a scatterometry technique.” It is believed that claims 1 and 57 are patentable over the cited art for the same reasons cited by the Examiner with respect to allowable claims 32-35 and 87-90.

The Examiner rejected claims 1-14, 19, 26, 40-42, 46, 57-69, 74, 81, 95, 96, 97, and 101 under 35 U.S.C. §102(e) as being anticipated by Yang et al. (U.S. Patent 6,982,793). The Examiner has also rejected claims 24, 25, 47, 48, 79, and 80 under 35 U.S.C. §103(a) as being unpatentable over Yang et al. Claims 53, 54, 108, and 111 are rejected under 35 U.S.C. §103(a) as being unpatentable over Yang et al. in view of Sezginer et al. (U.S. patent 6,819,426). The rejections of the independent claims 1 and 57 and their dependent claims 2-9, 32-35, 40-48, 51-52, 58-64, 87-90, and 95-101 are considered moot in light of the amendments to the independent claims 1 and 57 to thereby incorporate all of the subject matter from the allowable dependent claims, including any intervening claims, as noted above.

Claim 47 have been amended into independent form and recites that “obtaining the spectra S_A , S_B , S_C , and S_D comprises acquiring radiation from the targets A, B, C, and D using an imaging spectrometer” and “wherein an illumination and imaging NA’s of the imaging spectrometer are chosen to optimize the performance of the instrument on scattering structures by ensuring that only the zero’th diffraction order is collected.” The Examiner asserts that it would have been obvious to modify the teaching of Yang et al. to choose the NA’s so as to ensure that only the zero’th diffraction order is collected. It is respectfully submitted that NA’s may be configured in any number of ways, such as to only collect -1 and +1 diffraction orders or to collect multiple orders, etc. Accordingly, Yang et al. cannot be said to suggest configuring NA’s to ensure that only the zero’th diffraction order is collected, in the manner claimed. Since Yang et al. is silent as to NA configuration, it cannot be assumed that Yang et al. would necessarily suggest configuring NA’s to only capture zero’th order, as opposed to capturing other orders or to capture multiple orders in addition to zero’th orders. Thus, it is respectfully submitted that Yang et al fails to teach or suggest selection of the NA’s to ensure that only the zero’th diffraction orders are collected, in the manner claimed in claim 47 and dependent claim 48.

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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